Caring for patients with asthma

Guidance on routine self monitoring is not satisfactory

EDITOR,—The authors of the Grampian asthma study of integrated care failed to provide convincing evidence that routine self monitoring of peak expiratory flow does not improve asthma morbidity.¹ Several design flaws in the study related to power, patient selection, the intervention delivered, and outcome measures need discussing.

The power calculation is based on 569 subjects, but data is provided for only 485 (239 monitoring peak expiratory flow, 246 controls); what about the other 84 patients? The physicians' guidelines included two action levels depending on peak expiratory flow: when to start oral steroids (for severe episodes of asthma) and when to seek medical assistance. Given that patients with mild asthma were selected (those possessing peak flow meters were excluded from randomisation) and the weak power, the study design biased evaluation against effective routine self monitoring of peak expiratory flow.

At least four hospital centres (and an unstated number of doctors) participated, and the physicians had the freedom to tailor the self monitoring guidelines "according to their clinical judgment." The education of patients in self monitoring was not therefore standardised to an acceptable level.

Evaluating the effects of self monitoring is extremely difficult, given the diversity with which health professionals provide information and how patients utilise this to adjust medication and seek medical assistance when appropriate. The outcomes used were mainly doctors' behaviour (number of prescriptions issued) and morbidity (sleep disturbance, restricted activity)—indirect measures of efficacy of self monitoring; the study did not measure changed patient behaviour, which is the aim of education in self monitoring. Measurement of changed behaviour in patients depends on them having episodes of uncontrolled asthma; the mild nature of these patients' asthma biased the study. The most important finding in this study was the 20% increase in consultations for the self monitoring group; these patients recognised the need for assistance—confirmation of successful self monitoring. The fact that this increase was not statistically significant could be explained by the weak study design.

Peak flow meters provide objective information to complement management of asthma. Patients on combined "integrated care" with peak flow monitoring had fewer days of limited activity.¹ The authors' claim of mounting evidence against self monitoring of peak expiratory flow is contradicted by their introductory comments on two of these studies,^{2,3} misinterpretation of one,⁴ and ignorance of others.^{5,6} Clearly, more quality research is needed.

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1 Grampian Asthma Study of Integrated Care (GRASSIC). Effectiveness of routine self monitoring of peak flow in patients with asthma. *BMJ* 1994;308:564-7. (26 February.)

2 Beasley R, Cusley M, Holgate ST. A self-management plan in the treatment of adult asthma. *Thorax* 1989;44:200-4.

3 Jansson-Björklie S, Schnell E. Effect of peak flow information on

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patterns of self-care in adult asthma. *Heart-Lung* 1988;17:543-9.

4 Charlton I, Charlton G, Broomfield J, Mullee MA. Evaluation of peak flow and symptoms only self-management plans for control of asthma in general practice. *BMJ* 1990;301:1355-9.

5 Beasley R, D'Souza W, Te Karu H. Trial of an asthma action plan in the Maori community of the Wairarapa. *N Z Med J* 1993;106:336-8.

6 Levy M, Hayward SA, Jordan M, Golden G. A nurse-run asthma clinic in general practice: guided self-management [abstract]. *Am Rev Res Dis* 1993;147(suppl):A587.

Self monitoring unproved in clinical trials

EDITOR,—For several years now, peak flow based self management plans for asthma have been widely promoted and are included in current guidelines. They are expected to work because some patients have difficulty recognising airflow limitation from symptoms alone and optimal treatment often requires adjustment to suit the degree of airway dysfunction. However, the efficacy of such plans must be shown by randomised controlled clinical trials. Early trials were promising, but they were not controlled. Furthermore, it is essential to separate the effects of therapeutic adjustments made as a result of the plan from other therapeutic interventions which are independent of feedback from the plan itself.

We have reported that such a designed, controlled, and randomised trial showed no benefit to routine asthma patients in general practice despite apparent scope for improvement.¹ This negative result has now been found in the study from Aberdeen on patients who were attending hospitals outpatient departments² and by a study from Australia on patients who had been admitted to hospital owing to asthma.³ These trials agree that informed peak flow monitoring confers no benefit as regards asthma symptoms or lung function in any patient group. The Aberdeen authors suggest that more severely affected patients might benefit; they found that monitoring increased the use of oral steroids in those patients. On the other hand, increased use of oral steroids without improvement in symptoms or lung function could be an effect of confounding in a trial where multiple non-feedback interventions were being suggested, or may even represent increased severity of disease in the monitored group. The Australian study showed a reduction in hospital readmission rate for asthmatic patients in whom repeated hospital admission was a problem, though this may reflect an effect of reassurance by peak flow monitoring rather than true benefit since the other measures of disease severity were not affected.

These negative reports suggest that more critical re-evaluation of the prescription and promotion of peak flow based self management is now required. Its routine use will impose an increased burden which may be worse than the disease itself for some asthmatic patients. It is more logical that, until a plan is clearly shown to be effective, peak flow based self management should be recommended

only to patients for whom benefit has been individually demonstrated.

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1 Jamison JP, McKinley RK, Irwin WG. Trial of daily peak expiratory flow rate monitoring in the management of asthma. *Thorax* 1990;45:341P.

2 Grampian Asthma Study of Integrated Care (GRASSIC). Effectiveness of routine self monitoring of peak flow in patients with asthma. *BMJ* 1994;308:564-7. (26 February.)

3 Yoon R, McKenzie DK, Bauman A, Miles DA. Controlled trial evaluation of an asthma education programme for adults. *BMJ* 1994;308:564-7. (26 February.)

Parents must know when to intervene

EDITOR,—We are not surprised that the Grampian asthma study showed that monitoring of peak flow at home did not improve control of asthma.¹ We believe that the greatest benefit of monitoring peak flow at home is the prompt recognition of severe attacks.² The Grampian study was not primarily designed to investigate this. Furthermore, as the authors point out, many people with severe asthma were not eligible for the study because they already owned a peak flow meter.

We recently studied consecutive asthmatic children aged 5 and over who attended the accident and emergency department at North Middlesex Hospital over five months. For each child we determined whether the family owned a peak flow meter, whether the parents could quote an appropriate flow indicating that action should be taken, and whether a low peak flow had influenced the parents' decision to attend hospital by asking the parents to write down why they had attended hospital when they did. We measured the peak flow on arrival.

We studied 188 children. Seventy eight families owned a peak flow meter, but only 28 of them could quote an appropriate value indicating that action should be taken. Peak flow on arrival (as a percentage of that expected for age) was 59.3% (95% confidence interval 50.5% to 68%) for those who could quote a value indicating that action should be taken versus 51.5% (43.4% to 59.6%) for those who owned a peak flow meter but could not quote such a value and 40.2% (30.6% to 49.7%) for those who did not own a peak flow meter ($P < 0.005$). A low peak flow was mentioned in writing as a factor prompting attendance at the accident and emergency department by 21 of the 28 (75%) parents who could quote a value indicating that action should be taken compared with only 13 of the 50 (26%) parents who could not ($P < 0.001$).

These findings support our view that monitoring peak flow at home helps parents to recognise severe episodes of asthma provided that they can quote a value indicating that action should be taken. The severity of an acute attack is easy to underestimate, so published guidelines urge doctors to measure peak flow to judge severity. Surely when they manage an acute attack at home parents need a peak flow meter even more than their doctor does. Parents certainly value this use of peak flow meters,² but to benefit they must know the flows that should prompt action (for example,